AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently amended): A system for assisting regeneration of a storage/release NOx trap integrated in an exhaust line of a motor vehicle diesel engine, the system comprising gas admission means for admitting gas into the engine, means for injecting fuel into the cylinders thereof in the form of at least pilot and main injections, and means for controlling at least one of (i) said gas admission means and (ii) said fuel injection means for periodically switching the engine between a lean mixture standard operating mode in which NOx is stored in the trap and a rich mixture regeneration operating mode in which NOx is released from the trap and the trap is regenerated,

wherein, in ~~a~~ the rich-mixture regeneration operating mode,

the injection means are suitable for implementing at least two pilot injections triggered in a crankshaft angle range from approximately 50° to approximately 5° ahead of the top dead centre point of the cylinder concerned, and

the main injection is triggered in an undercalibrated range up to a crankshaft angle of approximately 35° after the top dead centre point,

wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the fuel injection means in accordance with the standard and regeneration modes of operation for engine loads below a predetermined threshold value.

2. (Previously presented): A system according to claim 1, wherein the control means are adapted to control the gas admission means to reduce the quantity of gas admitted into the engine when said engine is in its regeneration mode of operation.

3. (Canceled)

4. (Previously presented): A system according to claim 1, wherein the predetermined load threshold value is defined by a brake mean effective pressure of approximately 3 bars.

5. (Previously presented): A system according to claim 1, wherein the engine is associated with exhaust gas recirculation means for recirculating exhaust gas to its inlet, and the control means are adapted to regulate the operation of the recirculation means during operation of the engine with a rich mixture.

6. (Canceled)

7. (Previously presented): A system according to claim 1, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

8. (Previously presented): A system according to claim 2, wherein the predetermined load threshold value is defined by a brake mean effective pressure of approximately 3 bars.

9. (Previously presented): A system according to claim 2, wherein the engine is associated with exhaust gas recirculation means for recirculating exhaust gas to its inlet, and the control means are adapted to regulate the operation of the recirculation means during operation of the engine with a rich mixture.

10. (Previously presented): A system according to claim 4, wherein the engine is associated with exhaust gas recirculation means for recirculating exhaust gas to its inlet, and the control means are adapted to regulate the operation of the recirculation means during operation of the engine with a rich mixture.

11. (Previously presented): A system according to claim 8, wherein the engine is associated with exhaust gas recirculation means for recirculating exhaust gas to its inlet, and the control means are adapted to regulate the operation of the recirculation means during operation of the engine with a rich mixture.

12. (Previously presented): A system according to claim 2, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to

operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

13. (Previously presented): A system according to claim 4, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

14. (Previously presented): A system according to claim 5, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

15. (Previously presented): A system according to claim 8, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

16. (Previously presented): A system according to claim 9, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to

operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

17. (Previously presented): A system according to claim 10, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

18. (Previously presented): A system according to claim 11, wherein the control means are adapted to control at least one of (i) the gas admission means and (ii) the injection means to operate the engine with a lean mixture for approximately 60 seconds and a rich mixture for approximately 2 seconds.

19. (Previously presented): A system according to claim 1, wherein, in the rich-mixture regeneration operating mode, the injection means are suitable for implementing a series of injections consisting of (i) a plurality of pilot injections comprising at least two pilot injections triggered in a crankshaft angle range from approximately 50° to approximately 5° ahead of the top dead centre point of the cylinder concerned and (ii) a single main injection triggered in an undercalibrated range up to a crankshaft angle of approximately 35° after the top dead centre point.

20. (New): A method of assisting regeneration of a storage/release NOx trap integrated in an exhaust line of a motor vehicle diesel engine, comprising:

- admitting gas into the engine,

- injecting fuel into the cylinders thereof in the form of at least pilot and main injections, and

- controlling at least one of (i) said gas admission and (ii) said fuel injection for periodically switching the engine between a lean mixture standard operating mode in which NOx is stored in the trap and a rich mixture regeneration operating mode in which NOx is released from the trap and the trap is regenerated, for engine loads below a predetermined threshold value,

wherein said method further comprises, in the rich-mixture regeneration operating mode,

- triggering at least two pilot injections in a crankshaft angle range from approximately 50° to approximately 5° ahead of the top dead centre point of the cylinder concerned, and

- triggering the main injection in an undercalibrated range up to a crankshaft angle of approximately 35° after the top dead centre point.

21. (New): A method according to claim 20, wherein the control step comprises controlling the gas admission to reduce the quantity of gas admitted into the engine when said engine is in its regeneration mode of operation.

22. (New): A method according to claim 20, comprising recirculating exhaust gas to an

inlet of the engine, and regulating the operation of the recirculation step during operation of the engine with a rich mixture.